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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/816,102

**Applicant(s)**

JUNG ET AL.

**Examiner**

OLEG SURVILLO

**Art Unit**

2142

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8500)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date 08/24/07, 09/28/07, 02/14/08, 04/08/08



## **DETAILED ACTION**

### ***Response to Amendment***

1. Claims 1-29 remain pending in the application. No claims have been amended. No claims have been canceled. No new claims have been added.

It is noted that at pages 111-113 of remarks under the heading: Conclusion it is acknowledged that: "*Applicants may have during the course of prosecution cancelled and/or amended one or more claims*". Several submissions pertaining to canceled claims were presented under the same section of remarks. Applicants' uncertainty regarding the status of all claims is not understood. Applicants are therefore requested to verify whether or not any claims were in fact canceled during the course of prosecution because the Examiner fails to see that any claims were canceled in the Amendment dated February 25, 2008.

### ***Response to Arguments***

2. With regard to the Applicants' remarks filed on February 25, 2008:

it is noted that Applicants' arguments regarding objections and rejections made in the Office action mailed August 21, 2007 are addressed in the same order as made in the last Office action.

Regarding objection to an abstract as non-enabling to determine the nature and gist of the technical disclosure, Applicant's arguments have been fully considered but they are not persuasive. Applicants argued that *since the abstract includes recitations included in the independent claims, thus the abstract permits one "to determine quickly*

... *the nature and gist of the technical disclosure.*" This argument is not persuasive because the technical disclosure is not the same as the claimed invention. Also, the Examiner fails to see how a short single sentence is helpful in understanding the invention disclosed in the 43-page specification. Therefore, the objection is maintained. Applicants are encouraged to review the guidelines for drafting a proper abstract, as provided below under the heading: Specification.

Regarding objection to the specification as containing disclosure entirely outside the bounds of the claims, Applicants' arguments have been fully considered but they are not persuasive. Therefore, the objection is maintained. Applicants requested the Office to include citation to legal authority, such as citation to statutes or regulations in support of the objection. It is noted that such authority was cited in the last Office action at page 3 under section 4. Cited section of MPEP 1302.01 requires the Applicant to restrict the descriptive matter as to be in harmony with the claims when an application is apparently ready for allowance. Since this application is not in condition for allowance because issued identified below have not been resolved, Applicants are allowed to request objection to the specification as identified under section 7. below to be held in abeyance until allowable subject matter is indicated, pursuant to 37 CFR 1.111(b). However, Applicants are strongly encouraged to comply with the requirements of MPEP section 1302.01 early during the course of prosecution of the above-identified application unless they intend to incorporate the subject matter of all co-pending applications into the presently claimed invention prior to allowance of this application. If this is the case, appropriate claim amendments are expected in the next response.

Regarding objection to claims 4, 6, 10, and 11 for minor informalities, Applicants' arguments have been fully considered but they are not persuasive. In their argument, Applicants stated that the claims do not require correction. This argument is not persuasive because Applicants provided no evidence in support of their submission, which amounts to a general allegation that claims do not require correction. Applicants further argued that the Office action has provided no authority for the objection and requested the Office to include citation to authority for the objection if it is maintained. In response, Applicants are referred to **37 CFR 1.71(a)** as authority for the objection.

Regarding the rejection of claims 13-24 under 35 U.S.C. 101, Applicants' arguments have been fully considered but they are not persuasive. Applicants argued that since the specification shows that computer program executes on a processor, the claim is directed to a statutory subject matter. This argument is not persuasive because the features upon which Applicants rely (i.e., computer programs execute on processors) are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. In addition, Applicants failed to either rebut presumption that 35 U.S.C. 112, sixth paragraph applies or explain why the particular structure pointed by the Examiner is not the correct structure identified by "means" in the claimed "mean-plus-function" language. The Examiner interpreted "means for transmitting" through invocation of 35 U.S.C. 112, sixth paragraph and reviewing the specification to identify the corresponding structure that performs the claimed function. Evidence was found in the specification that suggests to one of ordinary skill in the art that all claimed elements of

the system (means for transmitting) may be reasonably implemented as software programs per se. Therefore, 35 U.S.C. 101 rejection is deemed proper since the claimed system is directed to a software per se, failing to fall within a statutory category of invention. Thus, the rejection is maintained. It is noted that citation of *In re Alappat* case does not render Applicants argument persuasive because Applicants err in equating "a general purpose computer" of *In re Alappat* to "a system" of claim 13. Use of the word "system" does not inherently mean that the claim is directed to a **machine**. Only if at least one of the claimed elements of the system is a **physical part of a device** can the system as claimed constitute part of a device or a combination of devices to be a **machine** within the meaning of 35 U.S.C. 101. Regarding *In re Alappat* case, the Federal Circuit stated: "... a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software." The Federal Circuit further stated: "... a computer operating pursuant to software may represent patentable subject matter..." Regarding *In re Alappat* case, the Examiner fails to see recitations of "a system" in statements of the Federal Circuit. If Applicants can find such a statement in the Board decision of *In re Alappat* case, they are requested to provide a recitation of such in the next response. Thus, even in view of *In re Alappat*, claim 13 does not constitute patentable subject matter.

Regarding Applicants' citation of the specification at page 39, line 29-31, and page 40, lines 1-3 and page 40, lines 17-30, the Examiner fails to see a recitation of "means for transmitting" being a hardware element.

Regarding claim 19, Applicants' arguments are not persuasive for the reasons given below under the heading Claim Rejections - 35 U.S.C. 101.

Regarding the rejection of claims 13-24 under 35 U.S.C. 112, first paragraph, Applicants' arguments have been fully considered but they are not persuasive. Applicants argued that: "... claim 13 implicitly recites means for aggregating ... Thus, claim 13 includes a combination and is not subject to the single means rejection". This argument is not understood. In particular, the Examiner fails to see "means for aggregating" implicitly recited in the claim or even a function of aggregating to that effect. Applicants have not provided evidence such as citation to authority to support a statement that claim 13 implicitly includes "means for aggregating" in such a way that it forms a combination with "means for transmitting". Therefore, the rejection is maintained.

Further, Applicants argued with respect to the same issue as discussed above that: *"assuming arguendo that claim 13 is a single means claim, dependent claims 14-24, which depend from claim 13, are not single-means claims. More specifically, each of the claims 14-24 adds at least one further recitation to claim 13"*. This argument is not persuasive. Claims 14-24 do not introduce at least another element by further limiting means for transmitting of claim 13. Hence, each of the claims 14-24 does not include at least two elements that would form a combination and therefore are subject to the single means rejection, as discussed above.

Regarding the rejection of claims 25 and 28 under 35 U.S.C. 112, second paragraph, Applicants' arguments have been fully considered but they are not



persuasive. Applicants argued that: *"the Office action has failed to provide an interpretation of the words in the claim"*. The Examiner disagrees. Claim 25 was identified as not meeting the threshold requirements of clarity and precision (MPEP 2183.02), which resulted in 35 U.S.C. 112, second paragraph rejection, and precluded the Examiner from adequate interpretation of the words in the claim. Applicants argued that each of the words recited in the phrase "proximate to a portion of said mote" can be defined and interpreted by one of ordinary skill in the art. However, Applicants provided no evidence in support of their argument, which amounts to a general allegation that each of the words recited in the phrase "proximate to a portion of said mote" can be defined and interpreted by one of ordinary skill in the art. Thus, the rejection is deemed proper and is maintained. As to claim 28, Applicants argued that the Office action failed to interpret the claim language in the light of the specification. The Examiner disagrees. The Office action provided an interpretation of the claim language in light of the specification. See last Office action at page 4 under paragraph 6. Therefore, the rejection is maintained.

Regarding the rejection of claims 1, 3-10, 13, and 15-22 under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. in view of Madden et al., Applicants' arguments have been fully considered but they are not persuasive. Therefore, the rejection is maintained.

As to claim 1, Applicants argued that the Office action fails to state a prima facie case of anticipation because the cited prior art (Mulgund et al.) fails to identify the same elements as in claim 1. In particular, Applicants asserted that Mulgund does not show

verbatim the language of the claim. The Examiner disagrees because in order to for an Examiner to establish a prima facie case of anticipation of an Applicants' claim, the Examiner must interpret the claim. If it could be shown that the cited prior art discloses the claimed limitations in exactly the same words, no claim interpretation would be necessary. Therefore, Office action is not required to identify a reference that would repeat claim language verbatim.

As to claim 1, Applicants further argued that: *"the Office action has supplied no text, reference, or knowledge explaining why one skilled in the art should equate the above quoted material from Mulgund et al. with the recitation of claim 1"*. The Examiner disagrees for the same reasons as discussed above, wherein the quoted material from Mulgund et al. is not required to repeat the claim language word for word, as claimed limitations are a subject to interpretation, such interpretation being as broad as the claim terms would reasonably allow, in light of the specification, when read by one skilled in the art with which the claimed invention is most closely connected. To that extent, one of ordinary skill in the art at the time of the invention would have interpreted transmitting at least a part of one or more mote-addressed content indexes of a first set of motes as including process of visiting a node and retrieving the information stored at the node in order to send out indexed content from the node.

As to claim 1, Applicants also argued that: *"the Office action points to no teaching, suggestion, or motivation in the cited material to combine the teachings of Mulgund et al. and Madden et al."*. The Examiner disagrees. Motivation to modify the

teachings of Mulgund with the teachings of Madden was identified in the Office action at page 7, and is repeated by Applicants in their response at top of page 24 of Remarks.

As to claim 1, Applicants further argued that: *"as the Office action provides no support for the statement that the combination is obvious to one of ordinary skill in the art, Applicant concludes that the Examiner is taking Official notice"*. The Examiner disagrees. Applicants erred in their conclusion that the Office is taking Official notice with respect to claim 1 because no Official notice was taken. As to Applicants' remark that Madden et al. fails to recite "content indexes", it is noted that Applicants failed to include citation to legal authority, such as citation to statutes or regulations that would require an Examiner to provide a reference (such as Madden et al.) that would show claimed elements in exactly the same words in order to establish a prima facie case of anticipation/obviousness.

As to claims 2-29, Applicants presented same arguments as discussed just above that do not arise a need to be addressed separately. The Examiner disagrees for the same reasons, which are not repeated for brevity.

### ***Information Disclosure Statement***

3. The information disclosure statement filed April 8, 2008 fails to comply with the provisions of 37 CFR 1.98 and MPEP § 609 because documents listed under section U.S. Patent Application Documents are not identified by a U.S. Patent Application Publication Number, as required by column heading. As a result, these documents have not been considered.

### ***Specification***

4. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

5. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

6. The abstract of the disclosure is objected to because it does not enable the United States Patent and Trademark Office and the public generally to determine quickly from a cursory inspection the nature and gist of the technical disclosure. Correction is required. See MPEP § 608.01(b).

7. The application contains disclosure entirely outside the bounds of the claims. Applicant is required to modify the brief summary of the invention and restrict the descriptive matter so as to be in harmony with the claims (MPEP § 1302.01). In particular, it appears that only disclosure of section IV. TRANSMISSION OF AGGREGATED MOTE-ASSOCIATED INDEX DATA (pages 18-25 of the specification) is relevant to the subject matter of claims 1-29, as presently claimed. The rest of the specification describes the subject matter of the co-pending applications wherein the name of each section in the specification corresponds to the name of each of the co-pending applications. Applicants are reminded that the subject matter of the earlier and later sections of the specification (sections I, II, III, and V.) is actually included through their incorporation by reference of the related/parent applications, as mentioned in the beginning of the specification (pages 1-4). As a result, providing a detailed description of the subject matter of co-pending applications is redundant and must be removed from the current application.

***Claim Objections***

8. Claims 4, 6, 10, and 11 are objected to because of the following informalities:

As to claims 4, 6, and 10, the claim language is unclear. As claimed:

***transmitting ... comprises effecting the transmitting...*** is unclear. Applicants are advised to use a proper part of speech. Appropriate correction is required.

As to claim 11, the claim language is unclear. As claimed:

***transmitting ... comprises encrypting utilizing ...*** is unclear. Appropriate correction is required.

***Claim Rejections - 35 USC § 101***

9. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

10. Claims 13-24 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 13 incorporates means-plus-function limitation reciting a function to be performed rather than definite structure or materials for performing that function.

As to claim 13, limitation: "means for transmitting" is interpreted to invoke 35 U.S.C. 112, sixth paragraph.

The current specification must be reviewed to assist in identifying the corresponding structure that performs the claimed function. The specification shows that transmitting at least a part of an aggregate of one or more mote-addressed content

indexes of a first set of notes is performed by a multi-note reporting entity (602) (page 20 paragraph 2 lines 5-9). Therefore, means for transmitting are interpreted to be a multi-note reporting entity (602).

Since the multi-note reporting entity is a computer program, as evidenced by specification at page 20, paragraph 2, lines 5-9, a system of a computer software per se is not in one of the statutory categories.

The use of the word "system" does not inherently mean that the claim is directed to a machine. Only if at least one of the claimed elements of the system is a physical part of a device can the system as claimed constitute part of a device or a combination of devices to be a machine within the meaning of 35 U.S.C. 101.

Evidence is present in the specification that suggests to one of ordinary skill in the art that all claimed elements of the system (means for transmitting) may be reasonably implemented as software programs per se, therefore the claim is rejected as a system of software per se, failing to fall within a statutory category of invention.

As to claims 14-24, additional means-plus-function language does not introduce any tangible elements by further limiting means for transmitting which were identified above as software elements per se. Therefore, additional means fail to render a system of claim 13 statutory under 35 U.S.C. 101.

***Claim Rejections - 35 USC § 112***

11. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

12. Claims 13-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement.

Claims 13-24 incorporate means-plus-function limitations reciting a function to be performed rather than definite structure or materials for performing that function.

As to claim 13, limitation: "means for transmitting" is interpreted to invoke 35 U.S.C. 112, sixth paragraph.

The current specification must be reviewed to assist in identifying the corresponding structure that performs the claimed function. The specification shows that transmitting at least a part of an aggregate of one or more mote-addressed content indexes of a first set of motes is performed by a multi-mote reporting entity (602) (page 20, paragraph 2 lines 5-9). Therefore, means for transmitting are a multi-mote reporting entity (602).

As result, claim 13 is a single means claim, i.e., where a means recitation does not appear in combination with another recited element of means, and is, therefore, subject to an undue breadth rejection under 35 U.S.C. 112, first paragraph. *In re Hyatt*, 708 F.2d 712, 714-715, 218 USPQ 195, 197 (Fed. Cir. 1983)

***MPEP 2164.08(a)***



Claims 14-24 do not introduce at least another element by further limiting means for transmitting of claim 13. Hence, each of the claims 14-24 does not include at least two elements and therefore are subject to an undue breadth rejection under 35 U.S.C. 112, first paragraph, as discussed above.

13. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. Claims 25 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 25 is ambiguous because it is unclear what is being meant by "proximate to a portion of said mote", which precludes the Examiner from adequately interpreting the words in the claim. Appropriate correction to provide clarity and precision or concise explanation providing evidence of how each of the words recited in the phrase "proximate to a portion of said mote" can be defined and interpreted by one of ordinary skill in the art is required.

As to claim 28, a multi-mote reporting entity is interpreted by the Examiner as a software program, in light of the specification at page 20, paragraph 2, lines 5-9. It is unclear how a software program may comprise a processor, which is a hardware component.

***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 1, 3-10, 13, and 15-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. (US 2002/0161751 A1) in view of "TAG: a Tiny Aggregation Service for Ad-Hoc Sensor Networks" by Samuel Madden et al.

As to claim 1, Mulgund shows:

transmitting at least a part of one or more mote-addressed content indexes of a first set of motes [visiting a node and retrieving the information stored at the node] (paragraphs [0025] and [0062]), wherein the terms "node" and "mote" are interpreted to have the same meaning of small embedded platform that has one or more sensors (paragraph [0026]) and therefore these terms are used here interchangeably.

Mulgund does not explicitly show that at least a part of an aggregate of one or more mote-addressed content indexes of a first set of motes is transmitted.

Madden shows transmitting at least a part of an aggregate of one or more mote-addressed content indexes of a first set of motes [a collection phase, where the aggregate value are continually routed up from children to parents] (abstract, section 1.1 paragraph 2, section 4 and 4.1 paragraphs 1-2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by transmitting at least a part of an

aggregate of one of more mote-addressed content indexes in order to lower the number of message transmissions, latency, and power consumption than the server-based approach (as taught by Mulgund) (Madden, section 4 under In-Network Aggregates).

As to claim 3, Mulgund in view of Madden shows transmitting at least a part of a mote-addressed routing/spatial index (section 2.1, paragraphs 2 and 3, Madden).

As to claim 4, Mulgund in view of Madden shows effecting the transmission with a reporting entity [TinyOS, the mote operating system] (section 1 Introduction, paragraph 1, Madden).

As to claim 5, Mulgund in view of Madden shows obtaining access to the one or more mote-addressed content indexes of the first set of motes [parent node obtaining a message from a child node, message containing one or more mote-addressed content indexes] (section 2.1, last paragraph, Madden).

As to claim 6, Mulgund in view of Madden shows effecting the transmission in response to a schedule (Madden, section 4.1, paragraphs 2 and 3).

As to claim 7, Mulgund in view of Madden shows receiving the schedule (Madden, section 4.1, paragraphs 2 and 3).

As to claim 8, Mulgund in view of Madden shows deriving the schedule (Madden, section 4.1, paragraphs 2 and 3).

As to claim 9, Mulgund in view of Madden shows deriving the schedule at least in part from at least one of an optimized query or a stored query (Madden, section 4.1, paragraphs 2 and 3).

As to claim 10, Mulgund in view of Madden shows effecting the transmission in response to a query (Madden, abstract, section 1.1 the TAG Approach).

As to claims 13, and 15-22, Mulgund in view of Madden shows all the elements, as discussed above with respect to corresponding claim 1, and claims 3-10.

17. Claims 2 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. in view of "TAG: a Tiny Aggregation Service for Ad-Hoc Sensor Networks" by Samuel Madden et al (hereinafter Madden Ref.1) and in further view of "The Design of an Acquisitional Query Processor For Sensor Networks" by Samuel Madden et al. (hereinafter Madden Ref. 2).

As to claim 2, Mulgund in view of Madden Ref. 1 shows all the elements except for sensing index being transmitted [sensors route data back towards the user through a routing tree rooted at the basestation] (section 1.1 paragraph 2, Madden Ref. 1).

Madden Ref. 2 shows at least one of a mote-addressed sensing index [a sensor table of sensors' readings (section 3.1 Basic Language Features)].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund in view of Madden Ref. 1 by transmitting at least a part of at least one of a mote-addressed sensing index in order to report sensor id, light, and temperature readings (section 3.1 Basic Language Features, Madden Ref. 2) and (section 2 last paragraph, Madden Ref. 1).

As to claim 14, Mulgund in view of Madden Ref. 1 and in further view of Madden Ref. 2 shows all the elements, as discussed per claim 2.

18. Claims 11, 12, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. in view of "TAG: a Tiny Aggregation Service for Ad-Hoc Sensor Networks" by Samuel Madden et al. and in further view of Regli et al. (US 2005/0141706 A1).

As to claim 11, Mulgund in view of Madden shows all the elements except for encrypting utilizing at least one of a private or a public key.

Regli shows encrypting utilizing at least one of a private or a public key (paragraph [0056]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund in view of Madden by encrypting utilizing at

least one of a private or a public key in order to support encrypted communication at the network layer between wireless devices (paragraphs [0054]-[0056] in Regli).

As to claim 12, Mulgund in view of Madden shows all the elements except for decoding at least a part of one or more mote-addressed content indexes utilizing at least one of a public key or a private key.

Regli shows decoding traffic on the network layer [decryption of traffic] utilizing at least one of a public key or a private key (paragraph [0064]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund in view of Madden by having at least a part of one or more mote-addressed content indexes (as taught by Mulgund in view of Madden) being decoded utilizing at least one of a public key or a private key (as taught by Regli) in order to support encrypted communication at the network layer between wireless devices (paragraphs [0054]-[0056] and [0064] in Regli).

As to claims 23 and 24, Mulgund in view of Madden and in further view of Regli shows all the elements, as discussed per claim 11 and claim 12 above.

19. Claims 25, 26, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. in view of "TAG: a Tiny Aggregation Service for Ad-Hoc Sensor Networks" by Samuel Madden et al and in further view of "A Transmission Control Scheme for Media Access in Sensor Networks" by Alec Woo et al.

As to claim 25, Mulgund shows a mote (Fig. 1 node (2)).

Mulgund does not explicitly show means for transmitting at least a part of an aggregate of one or more mote-addressed content indexes of a first set of motes, said means for transmitting proximate to said mote.

Madden shows means for transmitting at least a part of an aggregate of one or more mote-addressed content indexes of a first set of motes, said means for transmitting proximate to said mote [a TinyOS that facilitates routing data from child device to a parent device] (section 1 Introduction).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Mulgund by having means for transmitting at least a part of an aggregate of one or more mote-addressed content indexes of a first set of motes, said means for transmitting proximate to said mote in order to facilitate routing data between devices (Madden, section 1).

In support to the teaching of Madden, Woo shows a complete TinyOS application component graph wherein the sensor component periodically transmits the data toward a base station over the multihop network (section 2.1 Networking Component Stack).

As to claim 26, Mulgund shows a mote (Fig. 1 node (2)).

Mulgund does not explicitly show at least one multi-mote reporting entity resident in said at least one mote, said at least one multi-mote reporting entity configured to report at least a part of a multi-mote content index.

Madden shows at least one multi-mote reporting entity resident in said at least one mote, said at least one multi-mote reporting entity configured to report at least a part of a multi-mote content index [a TinyOS that facilitates routing data from child device to a parent device] (section 1 Introduction).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Mulgund by having at least one multi-mote reporting entity resident in said at least one mote, said at least one multi-mote reporting entity configured to report at least a part of a multi-mote content index in order to facilitate routing data between devices (Madden, section 1).

In support to the teaching of Madden, Woo shows a complete TinyOS application component graph wherein the sensor component periodically transmits the data toward a base station over the multihop network (section 2.1 Networking Component Stack).

As to claim 29, Mulgund shows at least one of a processor, a memory, or a communications devices formed from a substrate (paragraph [0026]).

20. Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. in view of "TAG: a Tiny Aggregation Service for Ad-Hoc Sensor Networks" by Samuel Madden et al. (hereinafter Madden Ref. 1) in view of "A Transmission Control Scheme for Media Access in Sensor Networks" by Alec Woo et al. and in further view of "The Design of an Acquisitional Query Processor For Sensor Networks" by Samuel Madden et al. (hereinafter Madden Ref. 2).



As to claim 27, Mulgund shows that said multi-mote content index comprises at least one of a sensing function, a control function, or a routing/spatial information of a mote-appropriate device (paragraphs [0037], [0041] in Mulgund).

Alternatively, Madden Ref. 2 shows that said multi-mote content index comprises at least one of a sensing function, a control function, or a routing/spatial information of a mote-appropriate device (under 2.2 Communication in Sensor Networks, paragraph 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Mulgund in view of Madden Ref. 1 and further view of Woo by having said multi-mote content index comprises at least one of a sensing function, a control function, or a routing/spatial information of a mote-appropriate device in order to provide mote specific information.

As to claim 28, Mulgund in view of Madden Ref. 1 and in further view of Woo show all the elements except for a processor configured to transmit at least one of a sensing function, a control function, or a routing/spatial information

Madden Ref. 2 shows a processor configured to obtain at least a sensing function of the mote (section 2.1 Properties of Sensor Devices, paragraph 2 in Madden).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Mulgund in view of Madden Ref. 1 and in view of Woo by having a processor in order to process sensor data that is being stored in a knowledge base (Fig. 2 in Mulgund).

***Conclusion***

21. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **OLEG SURVILLO** whose telephone number is (571)272-9691. The examiner can normally be reached on M-Th 8:30am - 6:00pm; F 8:30am - 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on 571-272-3868. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2142

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Examiner: Oleg Survillo

Phone: 571-272-9691

/Andrew Caldwell/  
Supervisory Patent Examiner, Art Unit 2142